REMARKS

Claims 1-4, 9-12, 15-18, 21-23, and 25-33 are pending, and were rejected by the Examiner. Claims 2, 3, 10, 11, 16, 17, 29, and 30 are amended herein for grammatical reasons. No new matter has been added by these amendments. Applicants respectfully request entry of the claim amendments, which require no new search and place the application in better condition for allowance or appeal.

Examiner Interview

Applicants thank the Examiner for the courtesy of a telephonic interview on July 2, 2003, in which issues raised below were discussed.

Rejections under U.S.C. § 112, first paragraph

The Examiner instituted a new ground of rejection of claims 1-4, 9-12, 15-18, 21-23, and 25-33 under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors were in possession of the claimed invention at the time the application was filed. Specifically, the Examiner stated that the previous amendment to the claims, which removed all reference to the reverse transcriptase encoded by SEQ ID NO:62 and having the sequence of SEQ ID NO:63, is not supported in Applicants' specification. The Examiner further stated that Applicants' position that the claimed nucleic acids need not result in a functional reverse transcriptase is not supported in the specification.

Applicants respectfully disagree. The original claims recited nucleic acids encoding "at least a portion of a plant retroelement reverse transcriptase" (emphasis added). The specification also contains numerous references to nucleic acids encoding "at least a portion of a plant retroelement reverse transcriptase." See, for example, page 57, lines 8-10 of the specification. The term "portion" is clear evidence that the inventors recognized that the claimed nucleic acid need not encode a functional reverse transcriptase. Indeed, the presence of the word "portion" conveys no suggestion that the encoded polypeptide is a functional reverse transcriptase. Since the term "portion" clearly indicates that the encoded polypeptide is not required to function as a

reverse transcriptase, the removal of reference to reverse transcriptase from the claims does not constitute new matter.

The Examiner also maintained a rejection of claims 1-4, 9-12, 15-18, 21-23, and 25-33 under 35 U.S.C. § 112, first paragraph, asserting, "Applicant still has failed to describe the claimed invention in such a way that one of skill in the art would reasonably conclude that Applicant was in possession of the invention claimed."

Applicants respectfully disagree. While ruling that one cDNA sequence does not provide sufficient written description of a genus of cDNA sequences, the Court of Appeals for the Federal Circuit stated the following:

> A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus.

Regents of University of California v. Eli Lilly & Co. 119 F.3d 1559, 1569 (Fed. Cir. 1997)

In contrast to the specification at issue in the Lilly case, the present specification provides five examples of nucleotide sequences that are more than 85% identical to the sequence set forth in SEQ ID NO:62, as recited in part (a) of claim 1. These examples include SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, and SEQ ID NO:76. Furthermore, the specification provides six examples of nucleotide sequences that encode polypeptides having amino acid sequences that are more than 85% identical to SEQ ID NO:63, as recited in part (b) of claim 1. These include SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:74, and SEQ ID NO:76. Thus, Applicants obtained at least six species falling within the claimed genus.

The Lilly court recognized, as did its predecessor court in *In re Angstadt*, that not all species need to be disclosed to adequately describe a genus. See, *In re Angstadt* 537 F.2d 498, 502-503 (Cust. & Pat. App. 1970). With regard to the present application, Applicants submit that the specification provides an adequate number of species, defined by nucleotide sequence, to describe the claimed genus and to satisfy the written description requirement. Applicants realize that the Examiner disagrees and maintains that more species are required. However, the

Examiner's position is too stringent. To require nucleotide sequences for dozens or more species sets a standard that is not an accurate reflection of the law. For example, the Union Oil court held that "[t]he written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed.'" See, *Union Oil Company of California v. Atlantic Richfield Company*, 208 F.3d 989, 997 [Fed. Cir. 2000, citing *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989)]. By providing nucleotide sequences for at least six species, the specification clearly allows persons of skill in the art to recognize that Applicants invented the presently claimed nucleic acids. Thus, the specification meets the legal standard and satisfies the written description requirement.

The Examiner also argued that while one of skill in the art can use a computer algorithm to find sequences having the required identity to SEQ ID NOs:62 and/or 63, "the disclosure of the specification does not indicate anywhere that such reverse transcriptase does not function." To the contrary, the specification and the original claims contain numerous references to nucleic acids encoding "at least a portion of a plant retroelement reverse transcriptase," which clearly indicates that the nucleic acids need not encode a functional reverse transcriptase. See, e.g., the specification at page 5, lines 24-27, page 6, lines 32-35, page 10, lines 20-21, page 20, line 25 through page 21, line 10, and page 57, lines 8-32, as well as the original claims. Thus, the disclosure of the specification clearly indicates that a functional reverse transcriptase is not needed, and a person having ordinary skill in the art at the time the application was filed would have appreciated that Applicants invented and were in possession of the presently claimed invention.

Finally, the Examiner maintained the rejection of claims 1-4, 9-12, 15-18, 21-23, and 25-33 under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in such a way as to enable one skilled in the art to make and/or use the claimed invention. The Examiner stated that "one of skill in the art would not be able to make and use the invention claimed unless Applicant taught which sequences, allelic variants, and complementary sequences having 85% or 95% identity to SEQ ID NOs:62 and 63 encoded functional reverse transcriptases." With regard to Applicants' explanation in the previous response that the claimed nucleic acids need not result

in a functional reverse transcriptase, the Examiner stated that this assertion "begs the question as to whether Applicant's entire plant retroelement is enabled and can be used by one of skill in the art."

Applicants respectfully disagree. As the Court of Appeals for the Federal Circuit stated in *Christianson v. Colt Industries Operating Corp.* (822 F.2d 1544, 1562 (Fed. Cir. 1987)), "The 'invention' referred to in the enablement requirement of section 112 is the *claimed* invention." Thus, the standard for enablement is based on the invention as claimed.

In the present case, the pending claims do not recite a functional reverse transcriptase, so evaluation of enablement is not directed to making and using a functional reverse transcriptase. Rather, evaluation of enablement is directed to making and using a nucleic acid molecule containing a nucleotide sequence with more than 85% identity to SEQ ID NO:62, a nucleotide sequence that encodes a polypeptide with an amino acid sequence having more than 85% identity to SEQ ID NO:63, or a nucleotide sequence that is fully complementary thereto.

Applicants' specification teaches how to make a nucleic acid having at least 85% identity to the nucleotide sequence set forth in SEQ ID NO:62. See, Applicants' specification at page 37, lines 5-18, and page 79, line 19 through page 80, line 24, for example. The specification also teaches that nucleic acid molecules can be used as primers or probes. See, specification at page 38, lines 18-35. Furthermore, a person of ordinary skill in the art would have appreciated that the presently claimed nucleic acid molecules could be used as, for example, markers for molecular breeding. See, e.g., Purugganan and Wessler (1995) *Mol. Ecol.* 4:265-269; Bhattacharyya et al. (1997) *Plant Mol. Biol.* 34:255-264; Ellis et al. (1998) *Mol. Gen. Genet.* 260:9-19; Flavell et al. (1998) *Plant J.* 16:643-650; and Pearce et al. (1999) *Plant J.* 19:711-717 (copies attached). Thus, the specification would have enabled a person skilled in the art at the time the application was filed to make and use the presently claimed nucleic acid molecules.

CONCLUSION

In light of the above remarks, Applicants respectfully request entry of the claim amendments above, and withdrawal of the rejection of claims 1-4, 9-12, 15-18, 21-23, and 25-33 under 35 U.S.C. § 112, first paragraph.